

## SHAFT DRIVE DEVICE

## CLAIMS

1. A shaft drive device, having:

a PCB device (1, 1');

a rotor device (50; 5, 51) with a rotor (5) and a rotor shaft (51) attached to it; and

5 a stator device (40) for driving the rotor (5) with the rotor shaft (51);

10 an attachment device (60) for attaching the rotor device (50; 5, 51) and the stator device (40) to the PCB device (1, 1') in such a way that the PCB device (5) forms part of the frame, surrounding the rotor shaft, of the shaft drive device.

2. The shaft drive device of claim 1, characterized in that the PCB device (1, 1') has a leadthrough (12) for the rotor shaft (51).

5 3. The shaft drive device of claim 1 or 2, characterized in that in the PCB device (1, 1') an axial bearing bush (11, 11') for cooperation with at least one radial bearing bush (52) provided on the rotor shaft (51) is provided.

4. The shaft drive device of claim 3, characterized in that the axial bearing bush (11) is embodied in one piece with the PCB device (1, 1').

5. The shaft drive device of claim 3, characterized in that the axial bearing bush (11') is embodied in an insert (101) that can be received in the PCB device (1, 1').

6. The shaft drive device of one of claims 2-5, characterized in that the rotor shaft (51) can be passed through the PCB device (1, 1') from side of the PCB device (1, 1') to a stop (15), with the rotor (5) remaining on the  
5 other side of the PCB device (1, 1').

7. The shaft drive device of one of claims 2-6, characterized in that the stator device (40) can be attached on the PCB device (1, 1') all the way around the leadthrough for the rotor (5).

8. The shaft drive device of one of claims 5-7, characterized in that the stator device (40) can be attached to the insert (101).

9. The shaft drive device of claim 8, characterized in that the attachment device (60) is designed such that it axially supports the rotor shaft (51) on the other side of the PCB device (1, 1').

10. The shaft drive device of claim 9, characterized in that the attachment device (60) has a lid (6), which can be attached to the other side of the PCB device (1, 1') and which has an axial bearing bush (61) for receiving the corresponding end of the rotor shaft (51).

11. The shaft drive device of claim 10, characterized in that the lid (6) can be locked in the PCB device (1, 1').

12. The shaft drive device of one of claims 8-11,

characterized in that the stator device (40) can be aligned with the PCB device (1, 1') via an alignment device (45), preferably centering pins.

13. The shaft drive device of one of the foregoing claims, characterized in that a spacer (110) can be attached between the rotor (5) and the stator device (40).

14. The shaft drive device of one of the foregoing claims, characterized in that the stator device (40) can be attached by SMD soldering or adhesive bonding to the wiring (10) of the PCB device (1, 1').

15. The shaft drive device of one of the foregoing claims, characterized in that the stator device (40) forms a unit, which has a stator coil core region (4), a stator winding (41) located thereon, and a stator arm region (42).